IN THE CLAIMS

Claims 1-33 (canceled).

34. (new) Apparatus for mixing of a chemical medium in gaseous or liquid state with a pulp suspension, comprising a housing having a wall that defines a mixing chamber, a first feeder for feeding the pulp suspension to the mixing chamber, a rotor shaft that extends in the mixing chamber, a drive device for rotation of the rotor shaft, a rotor body that is connected to the rotor shaft and arranged to supply kinetic energy to the pulp suspension flow during rotation of the rotor shaft by the rotation of the drive device, such that turbulence is produced in a turbulent flow zone in the mixing chamber, a second feeder for feeding the chemical medium to the mixing chamber, an outlet for discharging the mixture of chemical medium and pulp suspension from the mixing chamber, a flow-restraining disk in the outlet from the mixing chamber with one or more flow passages arranged to temporarily increase the flow velocity of the pulp suspension when the pulp suspension passes the flow-restraining disk, the second feeder comprising a chemical distribution element integrated with the rotor body and arranged to distribute the chemical medium to within a close vicinity of said turbulent flow zone and said rotor body comprising a number of rotor pins which extend from the rotor shaft on the upstream side of the flow-restraining disk.

35. (new) Apparatus according to claim 34, wherein said chemical distribution element comprises at least one chemical outlet situated upstream of the rotor pins.

36. (new) Apparatus according to claim 35, wherein said chemical distribution element comprises at least one distribution pipe that extends radially from the rotor shaft, whereby the chemical outlet is arranged on the distribution pipe.

37. (new) Apparatus according to claim 34, wherein said chemical distribution element comprises at least one chemical outlet arranged on at least one of the rotor pins.

38. (new) Apparatus according to claim 34, wherein said chemical distribution element comprises a plurality of chemical outlets arranged on at least one of the rotor pins, whereby at least one chemical outlet is directed in the opposite flow direction of the pulp suspension along the rotor shaft and at least one chemical outlet is directed radially outward form the rotor shaft.

39. (new) Apparatus according to claim 35, wherein said second feeder comprises a stationary cylindrical body which is coaxial with the rotor shaft, and wherein said rotor body comprises a sleeve that sealingly surrounds the cylindrical body, whereby the cylindrical body is provided with a channel for the chemical medium that communicates with the chemical distribution element.

40. (new) Apparatus according to claim 34, wherein each rotor pin is curved forwardly from the rotor shaft or backwardly relative to the rotational direction of the rotor body.

41. (new) Apparatus according to claim 34, wherein each rotor pin has a width as seen in the rotational direction of the rotor body that increases along at least a part of the rotor body in a direction against the rotor shaft.

42. (new) Apparatus according to claim 34, wherein said rotor shaft is provided with an axially flow generating element.

43. (new) Apparatus according to claim 42, wherein said axial flow-generating element comprises a number of blades which are obliquely attached relative to the rotor shaft.

44. (new) Apparatus according to claim 42, wherein said axial flow-generating element comprises a screw thread or a band thread which extends along the rotor shaft.

45. (new) Apparatus according to claim 34, wherein each flow passage extends obliquely from the upstream side of the disk against the center shaft of the disk.

46. (new) Apparatus according to claim 34, wherein the disk is stationarily arranged in the housing.

47. (new) Apparatus according to claim 46, wherein said flow-restraining disk comprises channels for distribution of the chemical medium on the downstream side of the rotor body.

48. (new) Apparatus according to claim 46, wherein said disk comprises a number of concentric rings which are coaxial with the rotor shaft and at least one radial bar that fixates the rings relative to each other and that are attached in the wall of the housing, whereby the flow passages are defined by the rings and the bar.

49. (new) Apparatus according to claim 34, wherein said disk is integrated with the rotor shaft.

50. (new) Apparatus according to claim 49, wherein said rotor body comprises a number of pins that extend from the rotor shaft, whereby the disk is fixed to the pins on the downstream side of the rotor body.

51. (new) Apparatus according to claim 50, wherein said rotor body comprises an additional number of pins that extend from the rotor shaft on the downstream side of the disk, whereby the disk is also fixed to said additional pins.

52. (new) Apparatus according to claim 50, wherein said disk comprises a number of concentric rings which are coaxial with the rotor shaft and the rotor pins fixate the rings in relation to each other, whereby flow passages are defined by the pins and the rings.

53. (new) apparatus according to claim 49, including spacer elements arranged between the disk and the rotor pins.